Monthly Diagnostics of Climate Events for the RCC-Washington Region

(i) Temperature

During the month of February, mean maximum temperatures (Tmax) were above-average (1-4°C anomaly) in Cuba and a portion of the Bahamas. Tmax was near average across the remainder of the Caribbean islands (**Fig. 1**). Minimum temperatures (Tmin) were warmer than average by 1-2°C in eastern and western Cuba and 2-4°C in the Bahamas (**Fig. 2**). Small portions of Hispaniola and Puerto Rico registered small positive anomalies while the rest of the region was near average.

Above-average Tmax prevailed through central portions of Mexico. Positive anomalies ranged from 1-4°C (**Fig. 1**). Patches of smaller positive anomalies are present in the south. Meanwhile, significantly cooler than normal conditions were observed in Coahuila, Nuevo León, and Tamaulipas states in northeastern Mexico. The Yucatan Peninsula observed near-average Tmax. In Central America, scattered areas observed positive Tmax anomalies of 1-2°C, including eastern Panama, much of Costa Rica, Nicaragua and Honduras, as well as eastern Guatemala. In Mexico, Tmin was cooler than average by 1-4°C in the northeast (**Fig. 2**). Smaller Tmin anomalies of mixed sign were scattered in small patches across the remainder of the country. Southern Guatemala and El Salvador registered large positive anomalies of 2-6°C. Conversely, portions of Nicaragua, northern Costa Rica, and eastern Panama observed 1-4°C negative anomalies.

(ii) Precipitation

Light rains remained widely spread over the Caribbean and Central America during February. Most of the Caribbean islands received at least 5mm, but less than 25mm of rain. A few small portions of the Bahamas, Cuba, and Haiti received more than 25mm (**Fig. 3)**. An area that includes portions of Cuba and the Bahamas received no rain according to satellite estimates. This rainfall pattern was generally near average for the month in central and eastern portions of the Caribbean. It was slightly drier than average over Cuba and the Bahamas where negative anomalies of 10-50mm were observed (**Fig. 4**).

Scattered light rains were prevalent across Central America. February's rainfall totals were less than 25mm, except for a small portion of southern Guatemala, coastal areas along the Gulf of Honduras, and the region near the Costa Rica - Panama border (**Fig. 3)**. These totals were generally near average accept for some positive anomalies in Costa Rica and Panama (**Fig. 4**). Little rainfall was received across central Mexico, while light rains were observed along the coasts. Portions of the Yucatan Peninsula received more than 25mm, as did Tamaulipas. Light and moderate rains were observed along the Baja California Peninsula. Such a pattern did not deviate greatly from February climatology. Small negative anomalies of 10-25mm were present in central Mexico and some small positive anomalies were observed over the Yucatan Peninsula.

(iii) Notable Events

On February 3, 2021, heavy rains in Guadalupe led to flash flooding. Rainfall totals as large as 86.5mm were measured in Pointe-Noire in just a 6 hour period. The unusual veracity of the rains caused a sudden rise of rivers and streams that led to the rescue of 15 people and at least 3 people missing according to the Préfecture of Guadeloupe.

Seasonally dry conditions, combined with winds and warmer than average temperatures have led to an active period of forest and brush fires across Central America. The fires can threaten livelihoods and property as well as negatively impact air quality in the region. Fig 5 shows all of the hotspots (indicative of active fire) that were observed during February. Activity was frequent and widespread in the region, especially in Pacific-facing regions and in southern Guatemala.

(iv) Sea Surface Temperature and Circulation

During February, sea surface temperatures (SST) in the equatorial East and Central Pacific remained below average. After a period of slight warming during February negative prevalent negative SST anomaly reemerged in the equatorial East Pacific. However, the largest negative SST anomaly (>-1.0°C) remains in the central Pacific. Compared to the previous month, the Niño3.4 index dipped back down to a value of -1.2°C by the end of February. With atmospheric circulation consistent with La Nina, NOAA's Climate Prediction Center has a La Niña Advisory in place indicating the presence of an ongoing La Niña. It is favored to persist through the end of northern hemisphere winter (~95% chance) with a potential transition to neutral (~60% chance) during spring 2021.

Narrowing the focus to the RCC region, above-normal SST (0.5-1.0°C anomaly) was present in the eastern Caribbean and extended into the Atlantic. SST anomalies in the Gulf of Mexico were mixed, with some positive anomalies in the far southern part of the Bay of Campeche and negative anomalies along the US gulf coast. (**Fig. 6**). In the East Pacific, a few regions of negative SST anomaly (0.5-1.5°C) were present, including along the northern Mexico coast and Gulf of California. SST was 0.5-1.5°C warmer than average near the Columbian coast.

February's 850mb circulation pattern featured easterly wind anomalies over the Caribbean and Central America that turn southerly over southern Mexico and the Gulf of Mexico and Bahamas (**Fig. 7**). This may have contributed to the northward shift of heavy rainfall out of the Bahamas. A weak cyclonic circulation anomaly was present over Central Mexico. Some northerly anomalies were observed over the Baja California Peninsula.

At the 200mb level, a very broad cyclonic circulation anomaly was present over the Eastern Pacific with strong associated southerly anomalies over Central America and Mexico (**Fig. 8**). Strongly anomalously easterly flow was observed over the Caribbean islands and southeastern Atlantic Ocean.

For more information, visit:
http://www.cpc.ncep.noaa.gov/products/international/usrcc/carib_cm.shtml

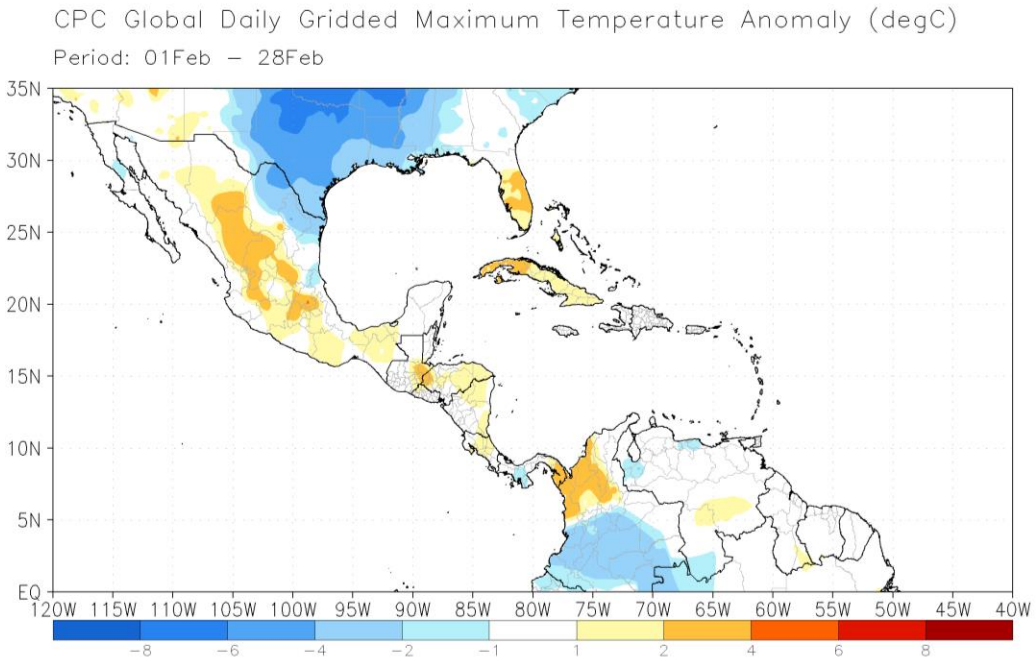

Figure 1. Gridded mean maximum temperature anomaly (°C) during the month of February 2021. Anomalies are computed with respect to the 1991-2020 base period.

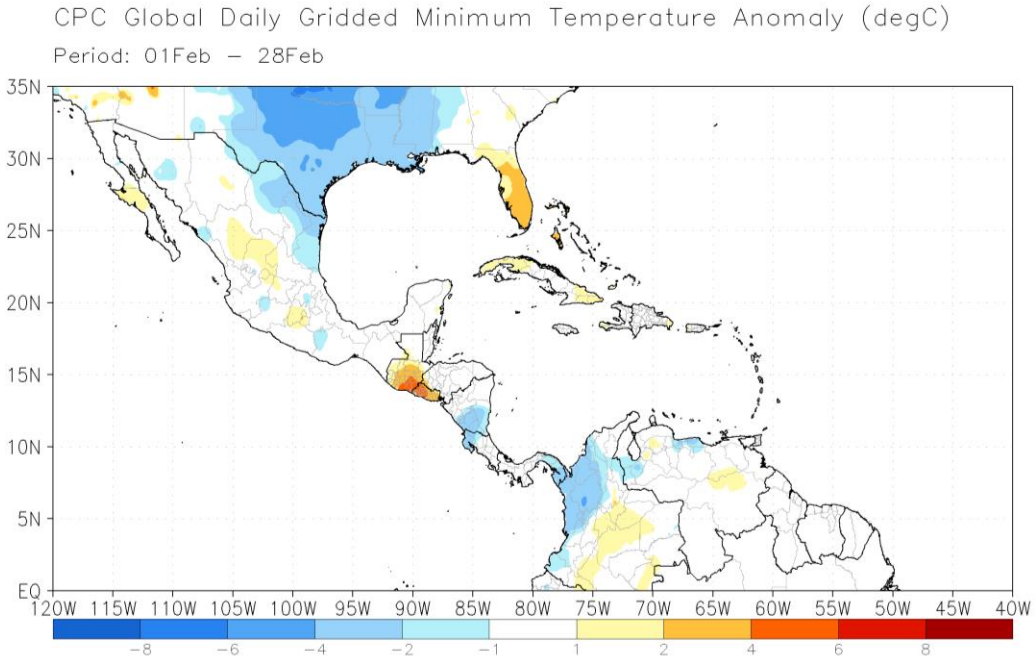

Figure 2. Gridded mean minimum temperature anomaly (°C) during the month of February 2021. Anomalies are computed with respect to the 1991-2020 base period.

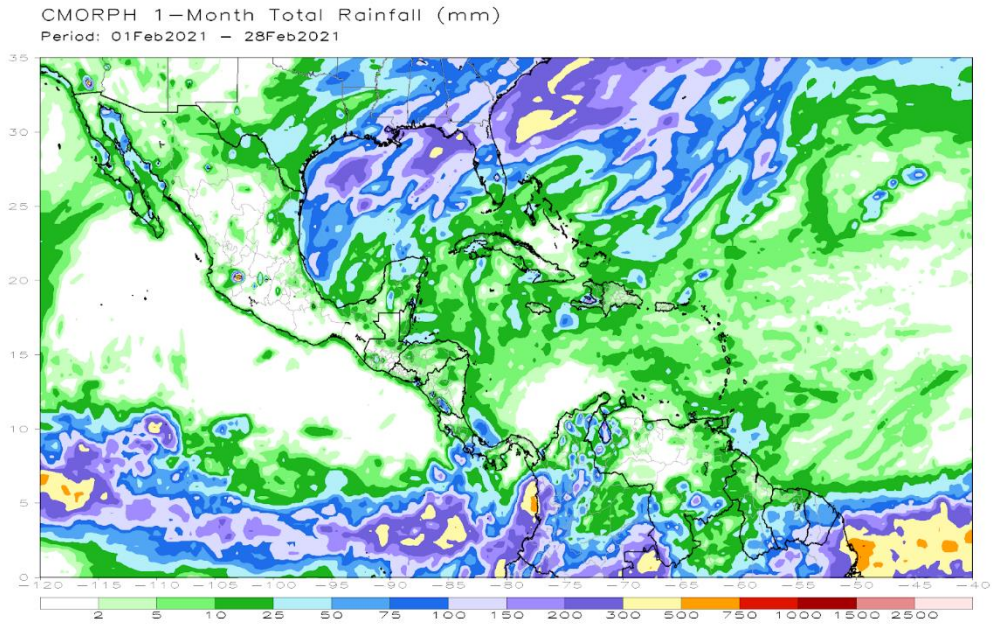

Figure 3. Satellite-estimated rainfall total (mm) during the month of February, 2021.

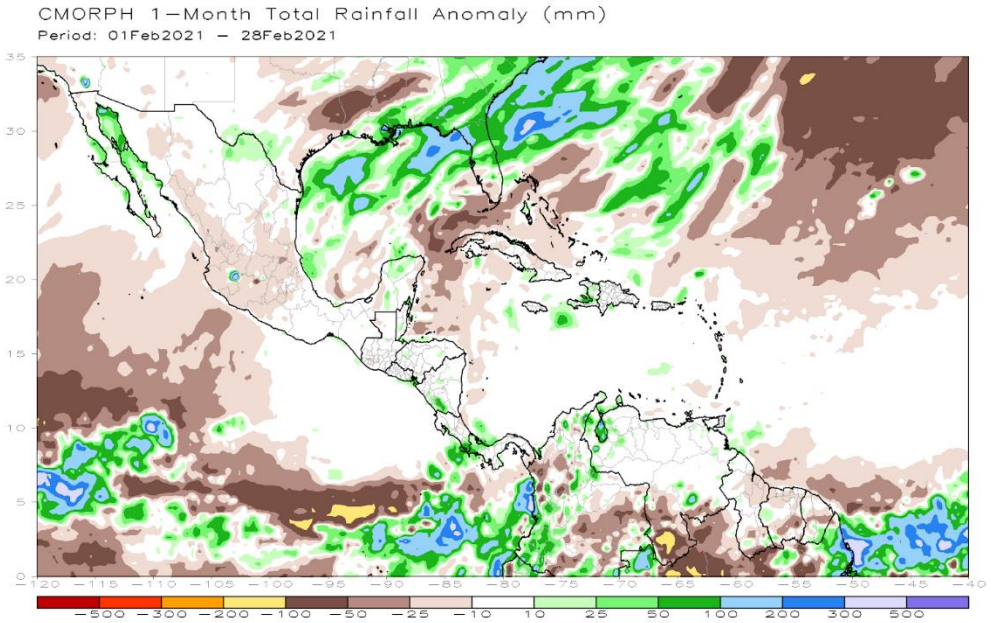

Figure 4. Satellite-estimated rainfall anomaly (mm) during the month of February, 2021. Anomalies are computed with respect to the 1998-2012 base period.

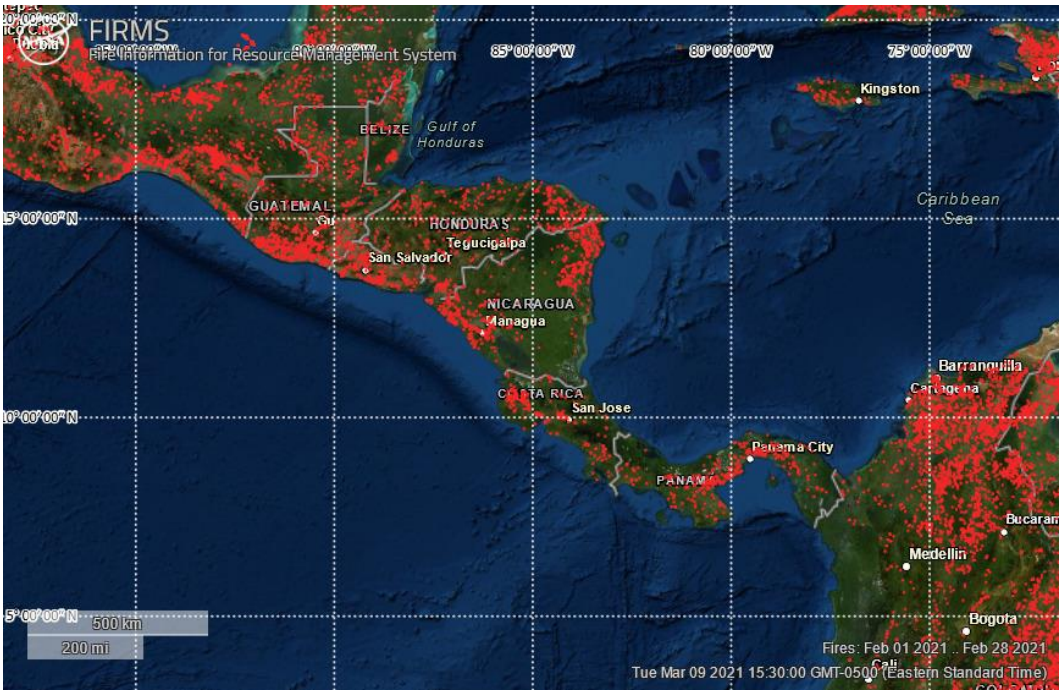

Figure 5. Fire detection map showing active hot spots during February, 2021 as detected by several satellite based sensors. Map Courtesy of the Fire Information for Resource Management System (FIRMS) website.

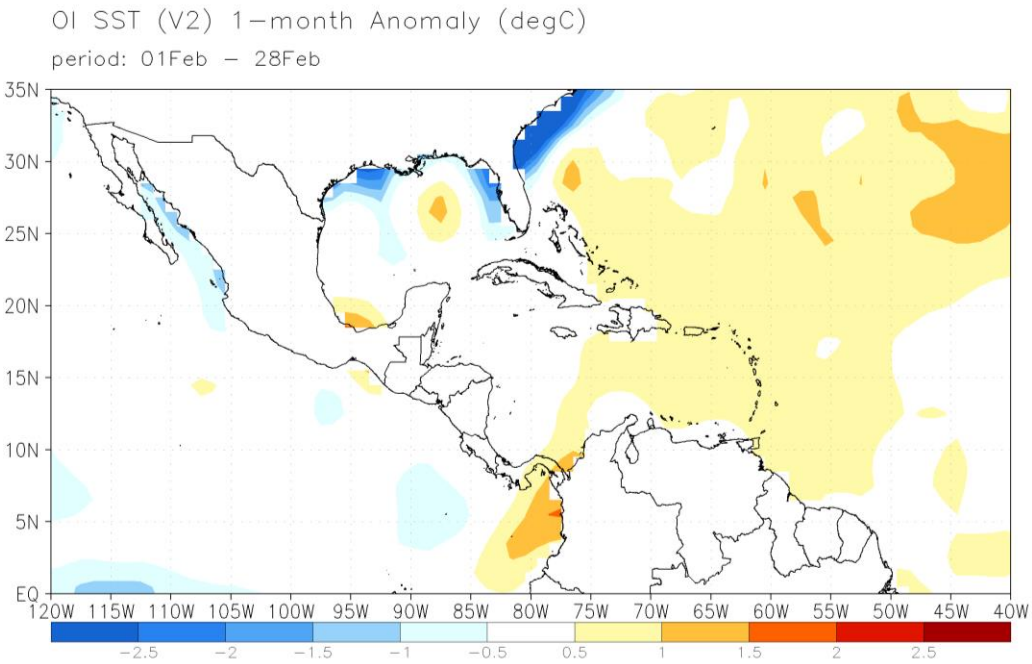

Figure 6. Average sea surface temperature (SST) anomalies (°C) for the month of February 2021. Anomalies are computed with respect to the 1981-2010.

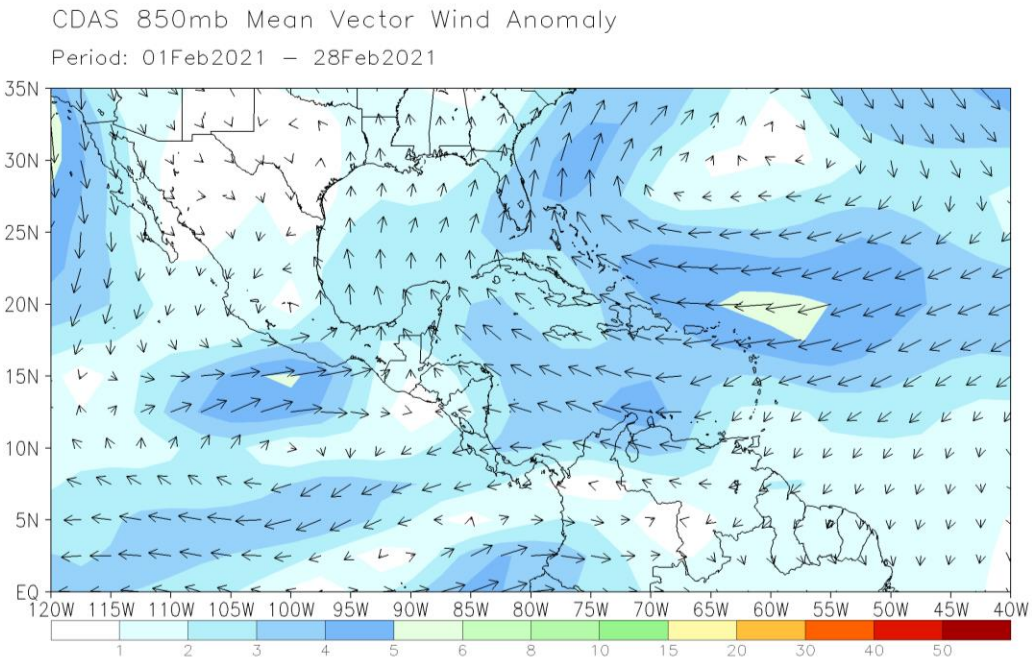

Figure 7. 850mb mean vector wind anomalies for the month of February. Anomalies are computed with respect to the 1981-2010.

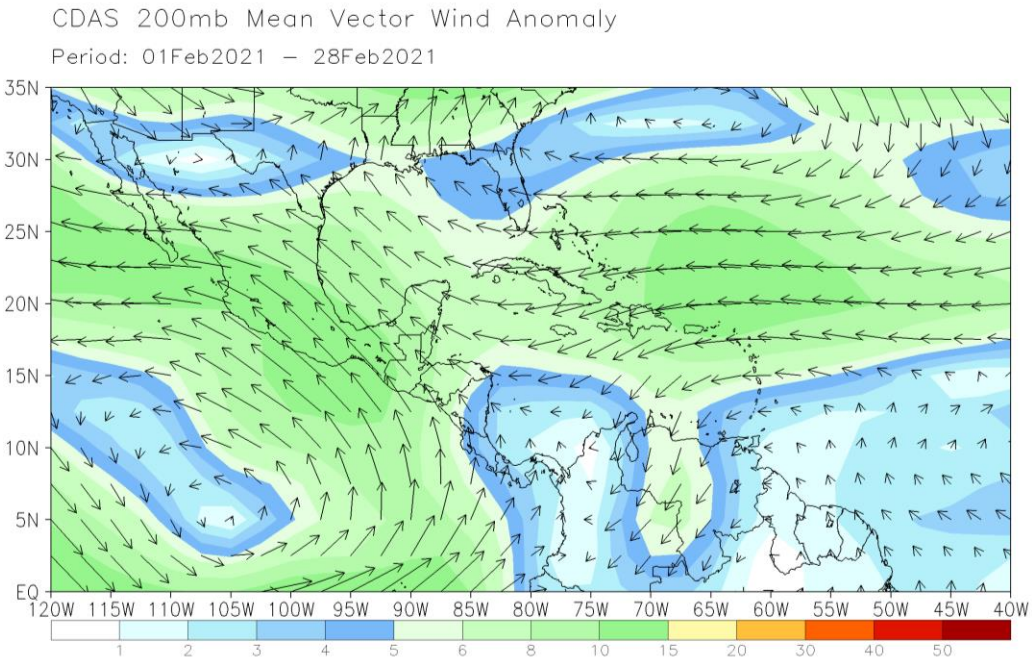

Figure 8. 200mb wind vector anomaly for the month of February. Anomalies are computed with respect to the 1981-2010.

10 March 2021

Update prepared by Climate Prediction Center / NCEP